SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

[*The* MINING JOURNAL *is Registered at the General Post Office as a Newspaper, and for Transmission Abroad.*]

No. 2494.—VOL. LIII. LONDON, SATURDAY, JUNE 9, 1883. PRICE (WITH THE JOURNAL) SIXPENCE
BY POST £1 4s. PER ANNUM.

FOREIGN MINING AND METALLURGY.

The Belgian iron trade continues extremely quiet, and business generally has shown a want of confidence as regards the future. Work has become scarce both in the mechanical construction establishments and at the forges. Tenders are to be submitted, June 13, for additional rolling stock for the Belgian State Railways, and it is expected that the proposals made will show a considerable reduction in prices. English pig has been weak in Belgium, casting has not exceeded 2*l.* 6s. to 2*l.* 6s. 10d. per ton, and an important transaction in hematite pig has been concluded at very low rates Belgian pig has been fairly well maintained, but the current quotation of 2*l.* 18s. per ton has been a good deal discussed, and in the Luxembourg pig has not exceeded 2*l.* 8s. per ton. As regards Belgian refining pig there has been rather a marked change; stocks are accumulating and the production is everywhere a good deal offered. At 2*l.* 6s. per ton consumers could procure all they want and even more. Ordinary pig has fallen naturally to 2*l.* 2s. per ton, and mixed pig to 1*l.* 18s. per ton. Iron has also receded, and No. 1 can scarcely be quoted above 5*l.* per ton, while No. 2 has not made more than 5*l.* 6s. per ton, and No. 3 5*l.* 12s. per ton. Girders have been maintained with some difficulty at 5*l.* 4s. per ton. Plates have also been in little demand. No. 2 has sold currently at 6*l.* 16s. per ton, while No. 3 cannot be carried above 7*l.* 12s. per ton, No. 4 being scarcely worth 10*l.* 16s. per ton.

Prices have scarcely varied in the French iron trade, and there appears to be no tendency to a revival in business; the set of affairs, indeed, is, if anything, in a contrary direction. A committee of forgemasters has just been established in the Haute-Marne, under the title of the Metallurgical Committee of the Forges of the Haute-Marne and the Meuse. The committee has commenced its career by suggesting that French colonies, and especially Algeria, should be submitted to the French Customs *régime*. The Mont St. Martin Steelworks are now in full operation, and are producing from 100 to 120 tons of steel daily. The rails made at these works resist extremely well all the tests to which they are subjected. A new furnace will shortly be lighted upon the basic system, and by this means the existing production of the works will be doubled. The works have concluded, it appears, some important contracts for steel blooms. The price of these blooms, which is at present 5*l.* 16s. per ton, seems likely to advance shortly, in consequence of the strong demand which prevails for them. Some rather important orders have been given out of late for the great French railway companies. The Northern and Eastern Steelworks have obtained contracts for more than 1000 tons of fish-plates. The Steelworks Company of France have also received orders for 207 tons of steel fish-plates and 12,400 tons of steel rails. An order for 12 fixed and swing bridges has been given out by the Eastern of France and the Paris, Lyons, and Mediterranean Railway Companies. The German iron trade does not appear to acquire more firmness. Pig especially has been indifferently maintained. Iron has been in some request upon the German markets, especially iron for construction purposes; but notwithstanding this prices have not been firmer; this is attributable to the severe competition prevailing. The German steelworks are generally well employed. Some auriferous and argentiferous deposits are stated to have been recently discovered in Lower Bavaria. Orders have been given out for about 1000 tons of steel raiis required for the Arlberg (Austria) Railway.

The Belgian coal trade continues to present a generally good tone. There has naturally been a certain slackening in business with the development of the summer; but this slackening is usually witnessed at this period of the year, and hence the present slight check has occasioned little or no uneasiness. Labour has become scarce in several districts, and this circumstance necessarily exerts a good deal of influence upon the course of production. Colliery proprietors who would be ready to make sacrifices cannot now consent to a reduction in prices in consequence of the scarcity of workpeople, and the exigencies of those now in their employment. The condition of the German coal trade has scarcely varied. Deliveries are still being continued with activity, and prices show a marked advance as compared with those current in June, 1882. A meeting of coke manufacturers connected with the Ruhr district has recently taken place at Bochum. It was stated at the meeting that many consumers are anticipating a fresh reduction in prices, and that they are unwilling to give out any orders in consequence. The syndicate resolved that it would not discuss the question of prices until October, and in order to maintain an equilibrium between the supply and the demand an extinction of some furnaces is not improbable. The Athus Mines, Foundries, and Forges Company will pay a dividend of 1*l.* 12s. per share for 1882; half of this is payable June 1, and the balance Dec. 1, 1883. The St. Denis Forges and Workshops Company will pay a dividend of 1*l.* 4s. 6d. per share for 1882. Of this dividend 1*l.* per share was paid in January, 1883, and the balance of 4s. per share will be distributed July 1.

Original Correspondence.

THE NEW QUEBRADA COMPANY.

TO THE SHAREHOLDERS OF THE NEW QUEBRADA COMPANY (LIMITED).

GENTLEMEN,—From the enclosed notice you will observe that the board has succeeded in effecting a provisional arrangement with the board of the Bolivar Railway Company (Limited), having for its object the long-looked for amalgamation of the two companies. The business of each company is so closely interwoven with that of the other that the step now contemplated has been repeatedly advocated and regarded as a desideratum never to be lost sight of, but until the company's mining operations were further developed the board considered it prudent to defer the question, in the conviction that terms more favourable to the Quebrada Company might reasonably be required as the extent and value of its property were demonstrated. To enable the shareholders to weigh the importance of the proposed negociation, the board thinks it well to pass in brief review the various arrangements that have from time to time existed between the two companies.

The shareholders will remember that under the original contract, by virtue of which the Bolivar Railway Company was established, and the railway to the mines constructed, it was provided that the Quebrada Company should pay to the railway company not less than 85,000*l.* per annum for carriage from the mines to the coast. This sum was to defray the cost of carrying 20,000 tons, and a lesser rate per ton was provided for any additional mineral carried beyond this quantity. When the railway was completed, the board found it necessary to effect a temporary modification of the contract on account of the then insufficient supply of mineral to meet the company's engagements to the railway company. Various modifications of the original contract have been from time to time procured by the board, full details of which have been duly reported to the shareholders, and the value of which will be understood from the fact that although the amounts paid to the railway for carriage since the opening of the line have only amounted for 1878 to 24,009*l.* 4s. 4d.; for 1879 to 37,096*l.* 11s. 11d.; for 1880 to 39,620*l.* 1s., and for 1881 to 51,051*l.* 8s., the Bolivar Railway Company has been induced to accept those sums in satisfaction of its rights from year to year; and the Quebrada shareholders have been secured by the board's negociations, a participation in the surplus revenue in excess of those amounts, although under the strict letter of the original contract the railway company could have claimed the whole of the net revenue produced from the company's mines during those years. The Bolivar Company made only one stipulation in accepting the above amounts—that in the event of the Quebrada Company exercising its right to buy up the railway, the deficiency in the annual amounts for carriage (to make up the original contract sum of 85,000*l.* per annum) should be added to the purchase price, which, according to Clause 19 of the original contract between the companies, was not to be less than the actual capital expended by the railway company with 30 per cent. premium added thereto, subject to certain minor deductions.

Under the old contract the Quebrada Company's right of pre-emption would lapse unless exercised on Jan. 1, 1888, and it is apparent that the amount payable to the railway company by virtue of the original contract, together with the arrears that would in that event be payable in respect of the annual payment to the railway company since the opening of the line, would be so enormous as to render the exercise of the right an impossibility. These considerations have led the board to the conclusion that the time has now arrived at which the question of amalgamation should be practically dealt with, for there can be no doubt that by concentrating the management of both mines and railway under one head, great economies may be effected, and other conditions established more favourable for the development of the property than those at present existing. In considering what would be equitable terms as between the two companies, the railway company has naturally attached great importance to the traffic to be derived from the carriage of coffee and other produce. This traffic, which has been developed without the aid of the Quebrada Company, is now yielding a large and lucrative revenue in which the shareholders in both the existing companies will equally participate after the amalgamation.

Under these circumstances the board, after a protracted and difficult negociation, has adopted the following as a provisional basis of amalgamation, subject to the approval and ratification of the shareholders of both companies:—1. That a new company be immediately incorporated to take over the business of the two existing companies. 2. That the title of the new company be "The Quebrada Railway, Land, and Copper Company (Limited)." 3. That the new company take over the undertakings of the existing companies, subject to the existing debenture charges of each of the present companies, with option to debenture-holders to exchange their bonds for debentures in the new company at the same rate of interest. 4. That the new company's capital be in shares of 10*l.* each. 5. That the Quebrada shareholders receive one 10*l.* share in the new company for every two 5*l.* shares they now hold in the existing company. 6. That the Bolivar shareholders receive five 10*l.* shares in the new company for every four 10*l.* shares they now hold in the Bolivar Company. 7. That the amalgamation take effect as from Jan. 1, 1883. Hence the separate profits of each company for the year 1883 will eventually be distributed among the shareholders whose names may appear on the register of each company respectively at the date when the special resolutions now submitted shall have been passed and confirmed. There are other minor details, but the above are the leading features of the projected amalgamation, the effect of which may be summarised thus:—

Capital of Old Companies.		Equivalent Capital in New Company.	
Quebrada shares	£306,590	Shares	£306,590
6 per cent. debentures...	94,400	6 per cent. deben. (say)	94,400
	£400,990		£400,990

The basis of exchange being par.

Bolivar Railway Company shares	£400,000	Shares	£500,000
per cent. debentures...	218,500	6 per cent. deben. (say)	218,500
	£618,500		£718,500

The basis of the exchange being equal to an average premium on the capital expenditure of the railway company of 16 1-6 per cent.

The great development of railway and other industrial undertakings which has recently taken place in Venezuela has led the board to believe that the new company should be constituted with sufficient power to undertake extensions of the Bolivar railway, in case concessions should be available, on terms that would be advantageous to the shareholders; and the Memorandum and Articles of Association of the new company have been prepared on this basis. The board trusts the above particulars will enable the shareholders to appreciate the importance of the negociation which has been effected, and which the board believes will be one of lasting benefit to the company; and they are invited to apply to the secretary for any further details they may desire. All the documents are open to shareholders' inspection at the company's office. It being the desire of the directors that a change of such importance shall secure the fullest consideration, and that as large a proportion as possible of the shareholders shall be present either in person or by proxy at the approaching extraordinary general meeting, the board requests that in the event of your being unable to attend the meeting, you will kindly sign and return the enclosed proxy (which is made out in favour of the Chairman and Deputy-Chairman of the company) at your earliest convenience. By order of the board,

N. G. BURCH, Secretary.

Company's Office, 2, Walbrook, May 30.

This circular is accompanied by the notice of an extraordinary general meeting of the New Quebrada Company to be held at the City Terminus Hotel, Cannon-street, on Tuesday, June 12, at one o'clock in the afternoon, for the following purposes:—

1. To consider the expediency of proceeding to wind up the company voluntarily in conformity with the provisions of the Companies Act, 1862, with a view to its re-construction and the transfer of its undertaking, business, and property to a new company now about to be formed under the name of the Quebrada Railway, Land, and Copper Company (Limited) upon the terms of a provisional agreement between the New Quebrada Company (Limited) of the first part, the Bolivar Railway Company (Limited) of the second part, and Nathaniel Geach Burch as a trustee for an intended company to be called the Quebrada Railway, Land, and Copper Company (Limited) of the third part, which provisional agreement will be submitted to the said meeting, and the draft of which is deposited and can be inspected by shareholders at the registered office of the company.
2. To consider and (if thought fit) to adopt and pass the following resolutions which will be proposed and submitted to the meeting, and the second and third of which it will be proposed to pass as special resolutions, in order to their being (if passed) subsequently submitted for confirmation by another meeting in due course:—
   1. That the provisional agreement dated the 23th day of May, 1883, and entered into between the New Quebrada Company (Limited) of the first part, the Bolivar Railway Company (Limited) of the second part, and Nathaniel Geach Burch as a trustee for a then intended company to be called the Quebrada Railway, Land, and Copper Company (Limited) of the third part, having been submitted to and considered by this extraordinary general meeting, is hereby approved and adopted, subject to the requisite resolutions being duly adopted and confirmed, to effect the voluntary winding-up of this company and also of the Bolivar Railway Company (Limited) so as to enable such agreement to be carried into effect.
   2. That this company shall be wound-up voluntarily.
   3. That Mr. Nathaniel Geach Burch be the liquidator of this company in the winding-up thereof. And that he be authorised, as such liquidator, to carry into effect such transfer and sale of the business and property of the company as provisionally agreed on by the agreement referred to and adopted in the foregoing resolution numbered 1. And in particular to receive, according to the provisions of the said agreement, in part payment or compensation for such transfer and sale such shares of the Quebrada Railway, Land, and Copper Company as are thereby provided to be allotted for the purpose of distribution amongst the members of this company.

THE RESOURCES OF THE ROCKY MOUNTAINS.

SIR,—A copy of this highly interesting work (by E. J. Farmer, Author of "Statistics in Relation to Gold and Silver." Cleveland, Ohio, 1883) having been sent me by the author, I can but think a few notes therefrom will be of interest to your readers, and the work will become an excellent guide and hand-book full of important facts useful to travellers and others interested in the resources of these wonderful regions. The information has been obtained partly by travel and partly while in attendance at the Great National Mining and Industrial Exposition, held in Denver, Colorado, during the fall of 1882, and is, therefore, reliable; the structure of the mountains and mineral veins; on gold and silver mining; statistics in relation to the precious metals, public lands, emigration, wages, cost of living, elevation of lands above sea level, &c., being a brief description of the mineral, grazing, agricultural, and timber resources of Colorado, Utah, Arizona, New Mexico, Wyoming, Idaho, Montana, and Dakota.

In his introductory remarks the author says, in reference to the discoveries of gold in California, wherever the cry was heard men began to "see visions and to dream dreams," and from that moment the mighty march of empire began. Under the magic influence of gold what mighty changes have been produced in 35 years. What a stream of this metal has been flowing from California, Montana, Nevada, and California into the world, enriching it in all that goes to bring man to his highest and best estate. Under this magic word what thousands of courageous men have scaled every mountain side, and marched through every valley of the vast ranges of the American Cordilleras? They have tapped the mighty veins of the mountain, and to-day the cry that rings from ocean to ocean is silver! silver! silver! A stream of silver has been opened amid the Rockies that will in time make the American nation the richest on the globe.

Colorado: The Silver Queen of the Rockies. Her mineral wealth, health-giving springs, grand scenery, and agricultural possibilities; a land of enchantment for the miner, tourist, invalid, and settler—the Rocky Range; the vast treasure-vault of the world. Colorado's production of gold, silver, copper, and lead to Jan. 1, 1883, $170,000,000.

At the opening of the Mining and Industrial Exposition at Denver last year the Hon. Wm. D. Kelly, of Pennsylvania, remarked—"The splendours of Palmyra of the Desert pale before a recital of the brief history of Colorado. Ten years ago I spent some weeks in traversing your beautiful State, and became familiar with everything of note in Denver, its metropolis, and as, yesterday morning, I looked upon the city again, I felt that I could not safely trust my own senses. History may be challenged, and be challenged in vain, for a parallel to the progress made by this city in this brief period in wealth, in arts, in all the elements of modern and advancing civilisation." Gold and silver are sometimes found in a pure state. They are commonly combined with other metals, as copper, lead, iron, zinc, bismuth, antimony, &c. Colorado has an area of 104,500 square miles, and contains 66,880,000 acres of land, with a population of 280,000. The eastern portion of the state contains about 45,000 square miles of plains, the central part 32,000 square miles of mountains, and the western 27,000 square miles of plateaus. The highest mountain is 14,464, while over 50 peaks rise to a height of over 14,000 ft. The mineral belt runs through the mountains in nearly a north-east and south-west course, and varies in width from 50 to 100 miles. Gold was first discovered in 1859 near Central City, on Clear Creek, and near Denver at Cherry Creek; but it was not till 1864 that the silver ore was discovered to be so valuable. From that date silver mining has been a series of wonderful surprises, and now she is the largest producer of the precious metals.

Colorado is a portion of that great territorial acquisition secured by President Jefferson from France, during the reign of the first Napoleon, and which purchase, under the Treaty of Paris, was known as the Province of Louisiana. It included what is now Louisiana, Arkansas, Indian Territory, Kansas, Nebraska, Missouri, Iowa, Minnesota, Dakota, Wyoming, Montana, Idaho, Oregon, Washington Territory, and part of Colorado. This territory contained over one million of square miles, and was purchased for $11,250,000, or about 2 cents per acre. By the war with Mexico in 1848 there was acquired from the Territory of New Spain the whole of Texas, New Mexico, Arizona, Utah, California, Nevada, part of Wyoming, and the Indian Territory, and about two-thirds of Colorado. The price paid to Mexico for the lands taken from her was $15,000,000, in addition debts were assumed $3,500,000 due from the Mexican Government to American citizens. The total cost, then, to the United States of all the territory from the Mississippi River to the Pacific Ocean, and from Mexico to the British possessions, was $29,250,000, which amount Colorado alone will produce this year in precious metals; while the production of gold and silver for 1882 from the territory thus acquired amounted to nearly $100,000,000. The resources of the Rockies are just beginning to be known. They are the vast treasure vaults of the world. Their veins of gold and silver rib their mountains. Their vast deposits of iron are like the framework of their system. Their immense beds of coal are sufficient to fire forever the hearth of the continent. Their mines of lead will pour forth their molten stream through time. Their mighty areas of copper are sufficient to band the world. The resources of this vast realm, an empire in its proportions, are equal to the needs of a continent like this, which is destined to support five hundred millions of people. Denver is not only the capital of the State, but its financial and commercial centre, and is appropriately styled the Queen City of the Plains. It has a population of 70,000, and the trade for the last year was $75,000,000. The climate of Colorado has no superior in that of any State or Territory in the Union. The mean annual temperature at Denver is 48° Fahr., and the rainfall 15·72 in. It is a land of almost perpetual sunshine, while the air is so pure and wholesome as to become an elixir of life. Colorado has a host of mineral springs, and these consist of hot sulphur and soda, cold soda, seltzer, iron, and chalybeate. The most noted summer resorts are at Idaho and Maniton Springs. The healthfulness of Colorado is attested by the limited death-rate, which, in comparison with the Atlantic coast, is as follows:—Atlantic coast, 21·60 per 1000; Colorado, 5·65, which includes, of course, deaths amongst invalids who crowd its sanitoriums. As a sanitorium the whole Rocky Mountain region has no equal in the world. For lung diseases, asthma, and malaria its pure air is a sure cure.

The State contains 5,000,000 acres agricultural land, mostly requiring irrigation For this purpose numerous canal companies have been organised to bring down water from the mountain streams, the rates ranging from 60 cents. to $2·20 per acre. Under the system of irrigation crops are certain, and wheat, oats, rye, barley, &c., are grown of superior quality. The flour made from the wheat is the best known. Although but little more than 100 standard acres ar under cultivation, the State already produces wheat for export.—Grazing: Next to mining, the chief interest in the State is the raising of stock. The number of cattle is over 500,000, and sheep 1,250,000, and room for many times these numbers.—Sport: Although few buffaloes are to be found, there are plenty of elk, bear, deer, mountain sheep, and mountain lion, while grouse, sage hens, ducks and geese abound, and squirrels, otter, beaver, mink, and musk-rat are plentiful. The lakes and rivers abound with fish, notably trout, which come to perfection in the cold mountain streams.

The attested State valuation of properties in 1877 was $43,453,946, and in 1882, $104,440,683.—Railways: Colorado has over 3000 miles of railways. There are the Denver and Rio Grande, Denver and South Park, Denver and New Orleans, Colorado Central, Kansas and Pacific, Atchison, Topeka, and Santa Fé, Burlington and Quincy, and the Union Pacific.

THOMAS CORNISH.

TOCOPILLA COPPER MINING AND SMELTING COMPANY.

SIR,—I have had the opportunity of perusing what took place at the general meeting, and am not surprised at the result of its operations when all matters are considered. I have not the pleasure of knowing Mr. Charles S. Hill, who in a very manly spirit stated his own honest convictions, but feel convinced that had he known more practically what is desirable to fairly illustrate those convictions the so-called "hall-marked" directors would not have been so complimented by the succeeding speaker. The directors of this company are not, that I am aware of, the directors of the Cape Copper Mining Company (I mean as a body of directors), therefore such fulsome compliments are out of place; and, moreover, the success of the Cape Copper Mines is, and cannot be due to the directorate in England, as what talent does it require at a board meeting to receive and confirm the reports arriving in this country from time to time from the officials of a good flowing concern, who themselves (the officials) have little else to do than apply the pick and gad to procure abundant supplies of mineral? I am not writing without a knowledge both of good mining operations and silent directors. It is, I fear, too often the case at most boards—there is one ruling spirit, and what he says is law.

Respecting Capt. Tredinnick, and the accusations brought against him. As a miner, he may possibly be second to but few; however if what is said to have been his report when acting for the parties who subsequently became the vendors, I cannot but express my surprise at his want of the usual Cornish tact in taking upon himself the onerous post of chief of all departments without even a smattering knowledge of the native language, and what is more important, to have for one moment relied upon finding all mining operations as he left them. Did he not understand the Cornish term "pick the eyes of her out, so that we may make good returns," which I do not hesitate to say is common to all miners when finally giving up a responsible command. The good or ill results of the newly appointed general superintendent remain to be proved, and I only refer to my previous communications to show the opinion upon that subject of other candidates, some of whom are eminently fitted by previous experience of such duties, who were requested to appear before the board at much personal inconvenience to undergo an examination which had been pronounced in the ante-room, and ultimately proved a mere waste of time, inasmuch as it was arranged upon whom the mantle was to fall. This gentleman may prove himself a very able man, but from my knowledge of Tocopilla in the past, and what it is now, and in all probability will be in the future, I think it requires all his Tharsis Company's training to carry out the duties and responsibilities attached to his office, particularly when the Chairman calls the attention of shareholders to a wished-for important fact in the following words:—"We are attaining a general position on the coast, in which we should hope that a great deal of profitable work will gravitate into our hands, as we assume more importance there."

The residents in Tocopilla of to-day are men of good sense and judgment combined with local authority, many of them occupying very different positions as compared with the period of Mr. Jose's experience; consequently if not met in an amicable business spirit can very easily combine and erect moles, purchase launches, provide water machines, and do all the business of nitrate shippers, thereby constituting a powerful opposition. Had the directors sent out a commercial gentleman of previous experience on that coast to have re-arranged matters, so as to meet present and future requirements, both for their own immediate interests and the conciliation of other traders around them, I should have more faith in future prospects. As to the question of smelting operations being restricted, I am at a loss to understand how it is possible that with two, if not three mail boats passing north and south weekly, such information as another firm about being started to purchase ores was not known and communicated to head-quarters long ago, and thus avoid raising and continuing the expectations of a large revenue from that department; but even in the face of that apparent oversight it remains to be shown why in the midst of such opposition the smelting cannot be carried on with a margin of profit. I will now close this letter by simply saying that two directors are Swansea agents of the company, who I presume are entrusted with the purchase of mining materials and general goods, with all its privileges; hence Mr. Jose's earnest desire not to go to Tocopilla; neither do we say one word that would interfere with able gentlemen who have taken the property off his hands by paying the handsome sum of 75,000*l.* It certainly was kind of them.—*London, June* 1. LOOKER-ON.

INDIAN GOLD MINES, AND THEIR FUTURE.

SIR,—I was much amused although not surprised at the remarks on page 524 of the *Mining Journal* of May 5, in referring to the Indian gold mines. Mr. Harvey has long tried all he could to keep hope alive, and as for Mr. Plummer, his remarks for months past have put me in mind of the saying that "words were given to man to conceal his thoughts," for anyone who has ever seen the Colar gold field could have no hope of finding payable gold there. When sent out by the Mysore Reefs Company to open up their ground I was depressed beyond measure long before I reached that so-called gold field, and within a few days of my arrival I wrote to my directors that "many of the reports upon which these companies had been formed were no more to be relied on than any prediction as to what the weather would be that day 12 months." This was written in August, 1881, and during my stay there till May, 1882, the opinion then expressed was confirmed, not only by my own observation, but by the experience of many managers who had the manly boldness to tell the truth. But the truth was not acceptable to those who first had given thousands of golden sovereigns for ground not worth 2d. per acre either for pasture or the metals or minerals on it, and who by such reports as named above had induced many to take shares to their subsequent grief and loss.

In a letter to you from India in the spring of 1882, I said, alluding to a line of pits on one of the properties, "that one would as soon think of sinking a line of pits along Cheapside, E.C., in the hope of finding gold or even quartz as to sink them there." Shortly afterwards the then manager wired to London that he had found gold, yet within three weeks of such message being sent the whole affair was closed and the Europeans sent home. The same manager succeeded me at the Mysore Reefs Mine. He reported home, at least so the solicitor to the company told me in London in July, 1882, that he had found gold there, yet in spite of that very shortly after the said manager closed the works, returned to England, and left the Europeans to get home as they could. At the best there could have been very little hopes in the minds of any of the managers, for between Oct. 2, 1881, and April 14, 1882, no less than seven managers were either dismissed or resigned, out of a total of 10 mines. It is true that one of them wet-nursed four of the mines, but in the above seven he is only counted once. To anyone who had ever been on a gold field there could be no hope of finding payable gold in such a state of chaotic geology.

I think Mr. Readwin draws comfort from very little things to be satisfied with Mr. Madge's letter of April 9. I refer to a letter in the Journal of May 5. It is certainly disappointing to go out expecting to find "300 or 400 tons of quartz (it was reported there was

1000 tons some months since, but, perhaps like the 1500 tons at the Ooregum mentioned in the Daily Telegraph and Standard of Nov. 17, 1880, it has melted, and left not even the tailings behind) and then to find nothing to do." Why, I had a post card sent to me from London before I left India, in which was the result of 4½ ozs. per ton of quartz from assay made in London of quartz from this very Colar Mine.

In the Journal of April 28 I see a report that 136¼ ozs. of gold had been shipped from New York from the Hoover Hill Mine. As I am located within a circle of many gold mines, and within a few miles of the Hoover Hill Mine, I shall take an early opportunity of going to see it. From information that I have received since my arrival here in March last, I find that a vast number of gold mines extending from near Washington, D.C., through Virginia, North and South Carolina, into Georgia, have at various times been worked, but most of them have been abandoned, not for want of gold, but because it was so fine it could not be caught. Since my arrival here I have applied for a patent for an amalgamator that I invented in Australia in 1856 and perfected in Spain in 1882, by the use of which I am prepared to save gold if it is as fine as flour. In a very short time I will send you a description and drawing of it. I will also, with your permission, send some particulars of this vast gold field.

HENRY MOON,
Mining Engineer, Leicester, England.

Silver Valley Mines, Thomasville, Davidson County, North Carolina, May 22.

CALLAO BIS COMPANY.

SIR,—I observe in last week's *Mining Journal* that Mr. G. Volkeider has accepted the local management of this company, and that he has been associated with the El Callao Company from its commencement. May I enquire of the directors, through your valuable Journal, in what capacity he was so associated, for if as the underground manager it appears to me that the appointment is a guarantee of the success of the Callao Bis.—*Peckham Park, June 4.* A. M.

HORNACHOS SILVER-LEAD MINING COMPANY.

SIR,—I am an unfortunate shareholder having put 100*l.* into a "hole" situated somwhere in Spain, and rejoicing in this high sounding title. Naturally enough now that the affairs of the company are in a critical state I have been taking myself to task for placing this sum in a receptacle so insecure. At the same time, I find on referring to the prospectus which induced me to do so that there was considerable excuse for my infatuation. The prospectus referred to was issued about two years ago with a view to increase the capital from 125,000*l.* to 150,000*l.*, and contained statements of the most glowing and tempting character. Moreover, it was distinctly stated that the debenture debt of 10,000*l.* was to be repaid out of the new issue. This, however, has never yet been done, the claims for directors' fees, &c., having doubtless proved too urgent to admit of so large a slice being so applied. The 25,000*l.* is now all spent, without having yielded any return, and yet the directors in the coolest manner possible ask for a further sum of like amount, with this information added that if the money is not forthcoming they cannot see their way to carry on the concern. To enable the shareholders to see that this is no empty threat they have sent us a copy of a printed circular issued to the present debenture-holders asking them to attend a meeting "to consider the present critical state of the company's affairs and the expediency of the debenture-holders taking possession of the property in the event of the shareholders failing to furnish the requisite means." Rather hard lines this for the poor shareholders, more especially for those of them who think the property is a good one, but that the management is exceptionally bad.

In the prospectus to which reference has been made the directors stated that the richness and value of the mines would fully warrant them to charge a premium on the new issue, which, it seems to me was not a justifiable statement seeing they could not fail to know that there were eager sellers of the earlier issue at about 40 per cent. discount. Also the statement as follows:—"The undertaking has reached a stage in which all elements of risk have ceased to exist." In fact, all through the prospectus there was an over-statement of favourable circumstances, and a complete silence regarding hard facts of a reverse character, which it seems to me is anything but creditable to the directors, and which I think ought to render them liable to those who, like myself, subscribed on the faith of their statements. The whole affair calls for a very strict investigation, and I trust that some of the shareholders who are resident in London will insist on this being done. R. W.

Manchester, June 6.

OTTAWA—CAPITAL OF CANADA.

SIR,—To-morrow will be the Queen's birthday, and already, all through Canada, preparations for the celebration of the day in our usual loyal manner are on foot. Here a cricket match at Rideau Hall, under the auspices of Princess Louise and the Marquis of Lorne, will take place, while there are excursions to Montreal, Prescott, and other places. In the western part of the Dominion, at Toronto, Winnipeg, and Brandon, and even on the Pacific there will be rejoicing, and all will turn out to honour the Queen, and let float the Union Jack. But, perhaps, the greatest celebration will take place on the Queen's birthday in the City of New York. The opening of the great bridge between New York and Brooklyn, and which has been set down for 2 P.M. on the 24th. Your despatches will give you information before this letter reaches you, and I can only touch on the event.

The bridge is 5989 ft. in length. The greatest span (suspension) is 1595 ft. 6 in. It was commenced in 1870, and finished in 1883. The Victoria Bridge at Montreal is 9437 ft., so that in length even Canada can beat it. Yet the New York bridge is the largest suspension bridge in the world. Where will the next great bridge be built? That is the question. I venture to say that it will be built across the River St. Lawrence, at Brockville. It will have to be suspension or a drawbridge, and it is doubtful whether the Governments either at Ottawa or Washington would allow a drawbridge over the St. Lawrence. The necessity for such a bridge will soon become apparent as soon as the Canadian Pacific is finished to Algoma Mills. Canada is shut up, and has no winter port for six months except Halifax. This is too far a drag. The Canadian Pacific has its eastern termini at Brockville and Quebec. Now from Brockville to New York is only 400 odd miles, while to Halifax it would be more than 1000 miles. At New York, too, one has a large city, great traffic, competition in freight on account of the numerous lines of steamers. New York is destined to be the winter port for the Canada Pacific, and Brockville will probably be the place where the next great bridge is built. At Brockville, too, the high cliffs on the north shore of the river above the town and the islands in the river render such an undertaking not only feasible but comparatively easy.

The Session of 1883 has not been fruitful of much legislation tending to the advancement of the country, although what has been done, has been well done. Chief in the list is the expansion of the policy of giving aid to railways, and the construction of railways from the Dominion Treasury. Up to last year the rule has generally been to let the Provincial Governments and the Municipalities give their aid, but it was argued, and argued justly that as the result of the building of railways was the increase of trade, and that the increase of trade increased the Dominion Treasury, and did not increase the Provincial Treasuries, that the Dominion should give their aid. Consequently, this Session, Sir Charles Tupper, Minister of Railways, brought in a Bill, and the Government carried it through giving subsidies to nine railways of $3200 per mile. To the Baie des Chaleurs Railway for 100 miles, from Matapediac to Pasbebiac = $320,000; to the Caraquet Railway for 36 miles, from near Bathurst to Caraquet = $115,200; to the Gatineau Valley Railway for their first 50 miles section, from Hull Station = $160,000; to the Great American and European Short Line Railway for 80 miles, from Canso to Louisburg or Sydney, Nova Scotia = $256,000; to the International Railway for 49 miles, from Sherbrooke, Quebec, to the International boundary line = $156,800, in connection with the extension of this road through Maine to connect with New Brunswick at or near Vanceborough or south of that point; to the Northern and Western Railway for 32 miles, from the Intercolonial Railway, near the Miramichi, to Moran's, near Demphy Village, New Brunswick = $102,400; to the Montreal and Western Railway, for the first 50 miles section of their railway, out of St. Jerome, Quebec = $160,000; to the Napanee, Tamworth, and Quebec Railway for 28 miles, from Napanee to Tamworth = $89,600; to the Quebec and Lake St. John Railway for 25 miles, from St. Raymond to Lake St. John = $80,000, in addition to the subsidy granted by Act 45 Vict., c. 14; for a railway from the Intercolonial Railway at Petitcodiac to Havelock Corner, New Brunswick, 12 miles = $38,400; and for a railway from Gravenhurst to Callander, 110 miles, a subsidy not exceeding $6000 per mile = $660,000, in addition to the subsidy granted by the Act 45 Vic., c. 14, making in all $2,138,400.

An Act to encourage the manufacture of pig-iron also passed, by which a bounty of $1·50 per ton (about six shillings sterling) on all pig-iron manufactured in Canada from Canadian ore from July 1, 1883, to June 30, 1886, and a bounty of $1 from 1886 to 1889 is to be paid from the Consolidated Revenue. Speaking of this industry, the manufacture of pig-iron, there is nothing that I know of in the whole history of industries that is so likely to produce untold wealth. When one remembers that Canada is as large as Europe, that the Canadian Pacific Railway is over 2000 miles (when finished), that there will be an immense demand for iron for rails, for spikes, for everything connected with iron, and the iron trade it appears to me a case of singular blindness on the part of British ironmasters that they did not, and have not taken advantage of the situation. Close by Ottawa there are mines which far surpass most of the English mines in the quality of the ore and in the quantity to be procured. Yet with the exception of a small forge in Nova Scotia there is not a furnace in the whole of Canada. I myself know a red hematite iron mine that could be bought to-day for about 5000*l.*, and which, I think, will prove to be worth 50,000*l.*

Transfer of Land.—An excellent Bill was introduced this Session, taken in a great measure from Sir Robert Torrens South Australia Act, to facilitate the transfer of land. By means of this Bill, instead of being obliged to examine titles back to the Crown at each transfer, the Crown grants an indefensible title, and thus all the uncertainty in the transfer of land is taken away, and land is as easily transferred as bank stock or other personal property. The author of the Bill, Herbert C. Jones, barrister, Toronto, found it difficult to get the Government to take hold of the matter, and consequently it was introduced by Dalton McCarthy, Q.C., and passed only its first reading. It will be taken up during the recess and discussed, and probably become law next Session. BOURONITE.

May 23.

GOLD AMALGAMATION, AND THE SICKENING OF MERCURY.

SIR,—Perhaps you will allow me to say a few words upon the Readwin process, in reply to Mr. Green's letter in last week's Journal. I have had some experience with the pans, and can say that in my opinion the alterations made by Mr. Readwin make them one of the best gold saving appliances before the public. No one surely can complain of having to transport a weight of 4 cwt., that being the weight of the heaviest piece about the machine. Under my eyes all kinds of mixtures of sulphides have been passed through the pans with the same uniform result—the saving of almost all the amalgamable gold, and of the mercury too. The prepared mercury is worth using in any kind of reduction apparatus, and its properties can only be appreciated by those who have used it. I have treated considerable quantities of waste, principally sulphides (not in London) and have got therefrom very nearly their last grain of gold contents as determined by fire assay, and this without losing mercury. How much troublesome plant and work does an apparatus consisting simply of one of the modern fine crushers and a set of pans not get rid of, leaving nothing for an after process in most cases. If the machine is slow, and I do not see that looked at in a proper way it can be called so, the number of pans can be increased without running into horse-power to anything like the machines it is meant to replace. Were it but wider known and carefully worked I do not fear for its coming into wide use.

St. John's Wood, June 6. H. J. MORITZ.

SHARE TRANSFERS, AND TRANSFER FEES.

SIR,—When the passing of the Limited Liability Acts and of some of the Stamp Acts was under discussion I understood that Cost-book notices were exempted from certain stamp duties, on the ground that there was a mere notice to the purser, and that no transfer in the legal sense of the term and of the nature to bring the transaction within the ordinary Stamp Acts which affected transfer of railway shares and such like took place. The sixpenny stamp on a Cost-book notice was I thought a compromise, and it now seems that we have saved the stamp duty at the expense of facilitating the fraudulent creation of shares. My first impression upon learning of the great Dolcoath frauds was to avoid Cost-book concerns altogether, but I was told that the system was all right, and that the default could only have been through culpable negligence on the part of the committee,

There is now, however, no doubt that the system is not so right as I was led to believe, for the West Kitty Company, in which I am a shareholder, has called a meeting for next week, which so far as I have hitherto understood the Cost-book System, will take the concern out of that category without bringing it into any other which will give it the protection of the law, either Stannaries or common. Not being a lawyer, I do not know how I shall be affected by the change, but unless it be very conclusively shown at the forthcoming meeting that the cost-book exemptions will not be jeopardised I shall get rid of my shares as quickly as possible, and avoid Cost-book mining in future. It is stated that the object of the meeting is to pass resolutions that on the presentation at the office of the company of any transfer of shares the secretary shall thereupon give notice to the alleged transferor that such transfer has been received; that all transfers received by the secretary shall be placed before the committee at the first meeting subsequent to the presentation thereof, for approval and registration; that every certificate of a person holding a share in this company shall be signed by the secretary and two members of the managing committee, and no transfer of any share or shares shall be accepted or registered by the secretary unless the certificate of the transferor be delivered up to such official; that every share shall bear a distinguishing number, and such number shall be entered in the transfer, transfer ledger, and on the certificate issued; that the foregoing rules be printed on the backs of the certificates; and for passing any other resolutions on the subject of transfers and registration of shares that may be deemed necessary.

Now, I do not object to any necessary resolutions being passed, and see no reason to oppose these, but the doubt that occurs to my mind is whether, when we have passed these, we shall not be in the "neither fish, nor fowl, nor good red-herring" condition, which most people object to. Some of my fellow-shareholders may ask why I do not express my views at the meeting. The reason is that I have never spoken in public, and that I fear I might copy the twaddle which one usually hears at West Kitty and other similar meetings, saying much that I should regret to see in print. I remember that a Truro correspondent in the *Mining Journal* of April 28 said of a speaker on the question of lords' dues, that his observations might be looked upon as "the ravings of a fanatic who loves nothing so dearly as the sound of his own voice, and I would not deny that sometimes it is painful to men who speak like Scotch bagpipes, the noise of which cannot be stopped until all the wind is out," and upon reading it the thought struck me at once that my experience of West Kitty meetings was that they were attended by too many of the bagpipe class; at all events it is unnecessary for me to be added to the number. There is an old maxim something like—"At times of business transact your business, and go about your business that others may do their business," and if this maxim were more attended to at mine company meetings they would be better attended. If unrefined chaff—one gentleman seriously informed one public meeting, that when he was at school they always called after him, "George Budd, stuck in the mud," which, although interesting information to his immediate friends, is not of commercial or scientific importance to the shareholders as a body—be indispensable, let us have a good 'count-house dinner, after the business at which dinner, those who have no business to attend to can joke, and make merry as they please, but it is unfair to compel every shareholder to attend the amusements as well as the— BUSINESS.

City, June 6.

JIGS, OR BUDDLES, OR BOTH.

SIR,—In the course of a protracted theoretical investigation into the natural element, on which the separation by density of solids is based, which investigation was published in a series during winter 1881-82 in the Mining Record, of New York, a result was arrived at by me, based on such theoretical investigation, which then was expressed as one of the resulting axioms.

"XII. No ore-dressing can be thoroughly successful unless by one of the alternate actions (sorting, grading, change of medium), the material is prepared for the other of these actions, the second (or third) action being always the concentration or separation proper."

As the third action, alternate change of medium, is, as yet, in practice not resorted to, and as the question practically rests between alternate grading and sorting, I will confine my remarks to the consideration of these two actions. Under-sorting, I understand, a division by size, and under-grading a division by equal falling quality; buddles, therefore, as well as belts, are sorters, and jigs are graders. It has been the common practice, where jigs were used, to prepare the material for jigging by sorting it in revolving screens. This is proper and commendable action, and such action will prove successful in all cases, without any exception, where there is sufficient difference in density to be acted upon, and, where properly constructed, jigs are properly operated. This method ceases to be practicable or effective where the practical possibility ceases of perfecting a preliminary division by size (sorting) by screening.

The essence of proper sorting or screening is to obtain sizes less different one from the other than the sizes are of particles being equal falling of the two substances to be separated. The density of tinstone may be assumed to be 6, and that of the rock matter to be 2·5. Therefore the remaining gravity, when submerged in water, for tinstone is 5, and for rock 1·5, and, therefore, a sphere of a diameter of 3·3 consisting of rock is equal falling in water with a sphere consisting of tinstone of a diameter of 1. $\left[\frac{d-1}{d\,(^1)-1} = \frac{6-1}{2{\cdot}5-1}\right.$ = 3·3 . . . This is by the axiom: diameters of equal-falling spheres (in water) are at inverse, rate of their gravity distances. Gravity distance = d × (*d* — 1) is the distance of fall in water, within which the solid displaces so much water as is equal in gravity to the gravity remaining in the solid, when submerged.] Taking material having passed through perforations of 1 millimetre diameter, and sorting same by passing it over perforations of ½ millimetre in diameter, two sorts will be obtained, and the question of success in treating the two sorts obtained, which are indeed the finest practically obtainable in screening, rests entirely on the condition that in these sorts no particles be contained of the two substances, wherein the diameters differ in excess of the difference between the diameters of equal-falling particles of these substances.

In treating copper and lead ores, of which the particles of metallic mineral in the ore occur in sizes coarse enough for being treated in the size of coarse sands or grains, the method of preliminary sorting by screens and subsequent jigging is practised with uniform and complete success as far as these coarse sizes are concerned. As coarse material we consider all in size (diameter) above one millimetre. The material obtained as heretofore specified being in size between ½ and 1 millimetre we call find sand. For this sort (with diameters between 1 millimetre and ½ millimetre) a partial success only with increased percentage of loss can be and is practically effected in the method alluded to. But with the sort in diameter below ½ millimetre, where the diameters of particles may differ in diameters between the finest floating slimes and ½ millimetre fine sands, at the rate of 1 to 100 and more, the method alluded to of screening and jigging does not fulfil the conditions for success.

Tinstone being treated in sizes finer than of ½ millimetre diameter is therefore not material which can be successfully concentrated by screening and jigging, to the exclusion of other apparatus. This does not mean that jigs cannot or may not be economically and properly employed as one of the apparatus in the concentration of tinstone, as further on will be discussed. If the method of screening and jigging is economically and successfully applied to copper and lead ores, then this is caused as stated by the fact that these ores can be treated in sizes coarser than ½ millimetre diameter. For the material resulting below such size, when copper and lead ores are treated in the method alluded to, other supplementary methods have to be resorted to, being the same as commendable in the treatment of tinstone, all of which is treated when ½ millimetre or below in size.

In what, then has the English practice of concentrating tinstone been defective? At an earlier opportunity, I had occasion, when comparing the results obtained in ore concentration in different European countries, to state as follows:—"It may be distinctly stated that no ore-dressing can be thoroughly successful unless the one of these alternate actions prepares the material for the other actions, the second action being always the concentration or separation proper. It is the total absence of this systematic action in the treatment of the finer sizes, which has been and is at present characteristic of the Cornwall ore-dressing system."

Buddles are sorters. This means that on the buddle particles of a longer diameter, under the influence of a sheet of water on an incline, roll over easier and pass longer distances in the same time than particles with smaller diameter will. If a buddle be fed with material being equal falling—that is, with graded or classified material—then there will be the condition fulfilled, that the tinstone be all present with short diameters, and the rocks all with diameters being 3·3 times as long those of the tinstone particles. Therefore, the proper method would be to grade or classify the material coming from the stamps in funnel boxes. The arrangement of these funnel boxes causes a decreasing velocity of flow for uniform quantities of liquid and the deposition successively of different equal falling grades. These grades should be fed separately to separate buddles, and be separately treated. If one of the progressive captains of tin mines will give this method a fair trial there will be great astonishment at the higher grade and better percentage in tinstone obtained, and most of them will then be satisfied with such substitutions of classifiers (funnel boxes) for pits, and with the result thus obtained.

Nevertheless, there is room for the application of well-regulated jigs in tinstone dressing. Jigs are graders or classifiers, as funnel-boxes (Wengler's) are, but jigs with a plurality of sieves and the decreasing lift of plunger towards the outlet succeed in discarding a large proportion of rock particles without appreciable loss of valuable material, as long as the attempt is not made to obtain clean concentrates. Jigs, therefore, are preferable classifiers to funnel boxes, and the material to be further treated on buddles from jigs is considerably less than the material treatable after simple classification by funnel-boxes. The products of each sieve must be treated by itself on a special buddle, the same as that from each funnel in classifiers. To do otherwise would be irrational, and would reduce the degree of success. To carry concentration too far in this case, where jigs would be used in preliminary action only, or for quiet other works than they perform on coarse materials previously screened or sorted, would result in a high percentage of loss, which will be avoided by leaving ultimate concentration to the buddles.

I may now be permitted to add, from several decades of practical experience, that as close adherence to the principle of duplicate and alternate action between sorting and grading does in all cases meet with improved and good success. With regard to the modern well-constructed and well-regulated plural sieve jig, with automatic feed and discharge of deads and concentrates, I may state, also as the result of experience, that praise of this machine can never be overdone. It is no exaggeration, if it be said of this modern jig, that the competent ore-dresser can make it work absolutely at will, and that the jig will execute whatever order be properly given to it by its attendant. Indeed, when in motion properly regulated the

machine assumes something comparable to the action of a living being. How this be possible becomes apparent only when we consider the elements contributing to the action of the machine, all of which, in a properly constructed machine, must be subject to modification at will by the attendant, so that he may adapt the action of the machine to the requirements of his special case.

In order to understand the possibilities for modifying the action of the machine I will enumerate the elements of action subject to modifications. They are:—A. Quantity of ore being continuously fed to first sieve.—B. Quantity of water being continually fed to first sieve.—C. Quantity of water being supplied under each set of plunger and sieve.—D. Head under which the supply of water below plunger and sieve is applied.—E. Quantity of water supplied above plunger.—F. Quality and quantity of bedding on each of the single sieves.—G. Depth of total material on sieves,—H. Number of lifts of plunger per minute.—I. Length of lift of plunger.—K. Proportionate decrease in lift of plunger for subsequent sieves.—K. As to the mechanical contrivance for continuous discharge of current water from above sieves and its regulation.

There may be a *pro rata* relative increase or decrease between each of these elements and every modification in whichever of these elements will have its effect on action of jig and result obtained. As a consequence, it may be stated that there is no case and no stage in ore concentration where a good jig might not be intelligently employed and not do essential benefit. F. M. F. CAZIN, M.E.

Ely, Vermont, U.S., May 29.

COPPER EXTRACTION PROCESS.

SIR,—In last week's *Mining Journal* I observe a paragraph respecting William Elmore (Limited), in which it is stated—"One of the directors is, it seems, much interested from commercial considerations in the Elmore copper extraction process, estimating that it will save him on 15,000 tons of ore 10,000*l.* per annum at his works alone," &c. As I am the only director I believe who has works for copper extraction, and as such statements are entirely unauthorised by me, are not consistent with facts, and might mislead the public, I insist, therefore, upon your inserting a contradiction, and giving it the same prominence you have given to the statements themselves.

Beechfield, Doncaster, June 4. RICHARD MORRIS.

ROCK DRILLS—RELATIVE MERITS.

SIR,—I notice that several of your correspondents agree with the suggestion contained in my letter published in the *Mining Journal* of April 13, but owing to the withdrawal of Messrs. MacKean and Co. the proposed trial seems to have fallen through, and users will have to arrive at the knowledge as to which is the best drill in their own fashion as heretofore. With a view of increasing that knowledge I would suggest to your numerous readers the advisability of organising and holding in London, (say) at the Agricultural Hall, Islington, an exhibition of mining apparatus, such as rock drills, compressors, ore-dressing, winding, and pumping machinery, quartz mills, stone-breakers, stamps, trams, wire ropes, tools, &c., in fact the thousand and one articles used in that great industry that is second in importance to none. Previous exhibitions of separate industries, such as Stationery, Ærated Drinks, and the Sportsmans, and at the present time the Fisheries show that the thing would undoubtedly be a success, and, beside proving highly edifying to those directly interested in mining, would attract quite as much attention from the outside world as any of the foregoing; therefore I hope to see the matter taken up. W. MICHELL VIVIAN.

Marbella, Spain, May 28.

LEADHILLS, AND ITS HISTORY.

SIR,—I was amused with Mr. Peter Watson's flowery history of gold mining at Leadhills, and would like him to continue it a little further, for he has not given us an account of the latest nugget found at Leadhills. Perhaps the following notes may refresh his memory:—In 1860 when Mr. Borron's (the Scots Mining Company) lease had 11 years to run the Leadhills Company gave him 15,000*l.* for it, and by this means they got the whole of the Leadhills property to themselves. Borron's portion was by far the best. In 1874 after they had got a new lease they sold the property to some English gentlemen for 60,000*l.* These gentlemen re-sold it to the present company for 120,000*l.* It would add very much to the interest of Mr. Watson's antiquarian researces if he would only give us the history of this nugget of 60,000*l.*, noting particularly who were the persons who got it, and if any of them are now directors of the present company. The royalties do not appear to me to be too high. At the end of the lease there will be no difficulty in getting a new tenant at the same lordship. I know at least one person who will be willing to pay it. R. T. M.

SILVER HILL MINING COMPANY.

SIR,—Like your correspondent "W. B.," of Leith, I have many times written to the directors and secretary of the above mine, and all the information I get is that all books and papers are in the hands of the Registrar of the Stannaries Court, Cornwall; and calling at the office of the company, I found the name taken down, and Mr. Phillips agent for something or somebody else, and was informed by the individual in charge that the mine was in liquidation. How it came to pass, or by whose authority, I cannot find out.

Is it possible or legal for directors to go to liquidation without consulting the shareholders? I am a tolerably large shareholder, having been most unfortunately induced to double my original holding by a special recommendation from the secretary that the mine was in a most flourishing condition, and profitable results immediately expected. If your correspondents, "W. B." and "D. P. D., Barnstaple," and other shareholders, will study the case tried three or four months since at the Bristol Assizes, in which this company was plaintiff against a defaulting shareholder, the revelations there made will be, or ought to be, a caution to confiding shareholders. It is not at all unlikely that the heavy costs and the exposure drove them into liquidation.—*Reigate, June* 7. H. S.

SILVER HILL MINE COMPANY.

SIR,—In answer to "W. B.," in last week's Journal, the company has been wound-up through the Stannaries Court, and it has been sold by the Court to a Mr. Poole, of London, who has been to the mine and taken possession, and was presented with all keys, as was requested by the Court, to the agent in possession. Mr. Poole returned the keys again to the agent, Capt. Rickard, who is still in possession. The men were stopped from working Feb. 19, and the last month's wages is still due to them. JOHN BUCKINGHAM.

Callington, June 6.

PERRANZABULOE MINES.

SIR,—It is a source of gratification for me to state that since my last on these neglected mines the New Quay Mining Company have re-started Treamble and Gravel Hill Mines, the latter with the intention of carrying out one of my suggestions—that of driving from thence to cut the Phœnix lode of the Perran Silver-lead Consols. In the event of their being fortunate enough to strike the rich shoot of ore in the bottom of Phœnix engine-shaft now in process of sinking, the value of that portion of their property will be considerably enhanced in consequence. The history of the Perran Silver-lead Consols since 1868 may not be void of interest to some of the numerous readers of the Journal. In 1868 the property was worked under a company entitled the Penhale United Silver-lead Company, and strange to say in the same year operations by that company ceased (although the lodes were payably productive) through some squabble or other, which, sad to say, are of only too frequent occurence in mining. And until 1880, when the present spirited proprietary fortunately resuscitated them, everything in the shape of workings had been dormant. When the Perran Silver-lead Consols took the property in hand they had their share of work to do in draining the mines of water, and only steady perseverance in this direction could carry them through, which it ultimately did. The company wisely deem the sinking of the Phœnix shaft as the most valuable and important point conducive to the future success of this splendid property, and this is being carried out under the energetic supervision of the managing committee. Phœnix lode will materially assist Perranzabuloe district in regaining the lustre it has lost in mining of late years, through no fault of its own, as far as minerals are concerned. The more I know of the district the greater is my surprise that miners almost ignore its existence, but the time is not far distant when the sun of Perranzabuloe will once more be in the ascendant, and many will observe it with "watery mouths." Not only is Perranzabuloe rich in mineral wealth but in antiquarian lore, which my next will slightly touch upon. WILLIAM NINESS.

Perranporth, June 7.

GOGINAN SILVER-LEAD DISTRICT—IMPORTANT TRIALS.

SIR,—I shall be glad if you will publish in this week's Journal, for the information of those concerned, the fact that two of the most important trials commenced in this county during the past 25 years are now being carried out at the Goginan and New West Goginan Mines, with results that will be known within three months from date. At the former they are driving a cross-cut from the north branch at the 20 fm. level to intersect the Goginan main lode, which has not been seen in that grant west of its junction with the north branch, but immediately to the east of it produced 1,000,000*l.* sterling worth of ore, and when opened on by the late Capt. Matthew Francis, in less than 12 months the discovery then made caused the shares to advance from 5*l.* to 420*l.* per share. In the latter, or New West Goginan, a cross-cut is being driven south at the 25 fm. level with the same object—to intersect the Goginan main lode, and from the indications the vein presents near the surface there is every probability of finding it quite as rich or richer than it has anywhere been seen. The firmest belief exists in the neighbourhood that these trials will prove successful, and that the time is close at hand when mining here will be more flourishing than it has ever yet been, a belief in which I fully concur. ABSALOM FRANCIS.

Goginan, Aberystwith, June 5.

WHEAL CREBOR AND WEST CREBOR.

SIR,—I notice in the *Mining Journal* several favourable references to Wheal Crebor, and may, therefore, state that I have heard from private sources that a fine course of ore has been lately cut. Besides the management is excellent, and it is near the famous old Marquis and the Devon Consols Mine. I will here mention in reference to the adjoining mine (I mean West Crebor) that I have heard from many experieneed miners that there is a very large lode of hot mundic, spotted with copper, near the tunnel, and not far from the boundary of the two mines, and that the Wheal Crebor agents are wisely sinking the main shaft with the utmost speed, to drive and get under this inviting mass. By doing this they will benefit both mines, because very large profits were made from the copper raised over it.

I will merely add, in reference to economic geology (which means mining generally), that mining is not a frantic experiment, as some dull people suppose, but is a charming and most fascinating philosophic industry, good for the poor and good for the rich. I will go even further, and declare that if "an undevout astronomer is mad" an undevout miner is also out of his senses; for how is it possible for anyone to examine the beautiful green, red, and golden yellow copper ore found in fissures at various depths under the earth's surface, obviously for the use of man, and not think of the infinite wisdom which blessed human nature with the gift of reason and the faculty to find it?—*Exeter, June* 6. OLD AMATEUR.

INDIAN GOLD MINING, AND ITS PROSPECTS—No. VI.

QUARTZ OUTCROPS OF TRAVANCORE.

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"11. On the north-eastern slopes of this same hill—Amberamullay—and down in Messrs. Munro and Eagan's estate, there are again several seams of similar quartz rock, and in the large stream dividing the two estates there are some crushed-up outcrops which, were I not convinced of their bedded character as distinguished from true reefs, I should myself have considered rather promising. Nay, it is quite possible that they may at this point, owing to the folded and crushed-up condition of the beds, be really auriferous to some extent, but this will be very local. In this neighbourhood the beds are assuming their easterly dip.

12. The next run of quartz rock of any importance is that in the Arraday valley, in the examination of which I was most obligingly assisted by Mr. Ackworth, of the Woodlands estate. This is a very capricious bed, thickening and thinning out very frequently, and only about 2 ft. thick at its best. It is very often highly felspathic, the small masses of buff and salmon-red felspar being sometimes very numerous.

13. On the eastern side of the Arraday valley the beds become much flatter, and thus the outcrop of these forming the higher ridges gets carried away more to the eastward, and so into the Pambanar valley. An outcrop of quartz rock on Mr. Deighton's estate is thus continued in the Pambanar valley, though there is not actual continuity all through. In Mr. Deighton's estate there are several small outcrops, most of which, however, are only portions of a small number of beds. The strongest of these forms a sort of capping on the summit of a small ridge on the eastern side of the property, and from the crest of this some large blocks of quartz have tumbled down into the valley. At the crest the bed is about 10 ft. thick, while it is nearly horizontal or dipping at a very small angle to the eastward, and thus forms the whole summit of the ridge for about 100 yards or so. It then bends or dips downwards to the east-north-east, gradually thinning out until in the saddle below there is scarcely more than a foot in thickness, and then this dwindles down to a few inches. In the same way the bed thins out to the north and south.

14. A sample of the rock from this outcrop has been assayed by Messrs. P. Orr and Sons, of Madras, and gold was found in it at the rate of 2 dwts. 1 gr. per ton—that is, considering that the samples examined by Messrs. P. Orr and Sons purport to be about 2 lbs. in weight, the 1-1240th part of 1 dwt. 1 gr. must have been found in the sample.

15. Very much, however, in the same strike, but a good way to the north-east, there is a further strong outcrop of quartz rock in the Pambanar valley, at the crossing of the path from the high road to the Granby estate, where the rock is seen on both sides of the stream, only now with a low westerly dip. At the eastern side of the stream where the path rises up over the saddle the outcrop forms a good portion of the easy slope of the ridge to the northward, and here the ground is a good deal cut up and knocked about as if it were an old site of mining and washing such as is seen on the Neilgiris or Wainád. It turned out, however, that this path was one of the main old roads of the hills, and that there is an old halting place near the ford, which used to be and is still much frequented by cattle; and careful search failed to show any more signs of old washings. I could see no gold visible in the rock, and a sample, 33 lbs. in weight, which I had crushed and washed, did not produce a single speck of gold. This sample was from the west side of the road, where the bed is about 3 ft. thick. As in all the other outcrops, except that on the western slopes of Amberamullay, this bed too thins out to the southwards, and it is not seen to cross the main road from Peermerd to the Peryaur.

16. Such are the main outcrops, and in all of these the rock is more or less of the same constitution—a quartz rock, with very often a good deal of felspar distributed through it in small crystalline masses, sometimes as large as peas—generally coarsely crystallised dull white and glassy quartz, and less often a more compact rock, like that of a vein or reef. It is generally of a white colour, but at times it is stained red or even a golden yellow from ferruginous matter, and scattered through it there is often a small quantity of iron pyrites, or frequently small particles of magnetic iron ore. It is also cavernous or cellular to some extent, but cavities are mostly such as have been left by the washing out of the small masses of felspar.

17. Some very distinctive features about these outcrops may also be pointed out as further proof that they are not reefs or veins—they do not, as far as I have seen, send off any leaders or small side veins into the rock above or below them, nor do they show any casing or separate material lying between them and the rocks they are associated with. In fact, they have no walls, but run between the other gneiss beds as seams or beds themselves—often, indeed, shading rather quietly into the bed above or below them.

18. Having thus given a very decided opinion as to the non-auriferousness of these outcrops and their small extent it may hardly seem worth while entering on the consideration of mining rights; but my intercourse with the landed proprietors of the Travancore hills has shown me that the knowledge of the existence of quartz of some kind or other may in some cases, and does in many others, keep up in their minds the idea that ores and mineral, and possibly noble metals may be on their properties, and that the mining rights ought to be settled one way or the other. At any rate, there is wide discontent among the landowners at the non-settlement of mining rights in their leases, and as there is always a possibility that gold may be found, or a belief that the auriferousness of quartz may enhance the value of the estates, it is as well that their rights should be settled. No better example of the annoyance and delay consequent on doubtful or unsettled tenure can be put forward than that of the Wainád lands.

19. The Travancore Government should decide either in a complete reservation of mining rights—that is, the landed proprietors shall have no right or title to any ores, minerals, or noble metals existing on their properties, and that the Government can enter on and take them out or lease them separately to other persons, entry being made at a fair valuation for damage and loss caused to the present landed proprietors, or else fix on a royalty to be demanded on the gross outturn of all ores, minerals, noble metals, &c.

20. I myself would suggest a royalty; but, and in the case of fresh lands which are known (this must be decided by an expert) to contain such minerals, then such lands must be taken up for *bona fide* mining in blocks of a certain size and to be entered upon, and mining operations commenced within a certain period. The buying and selling of land merely on mining probabilities must be guarded against. For such lands, also, the upset price per acre might be different to that of other lands.

21. I do not myself, however, expect that there is much land in Travancore likely to be taken up solely for mining; so the question reduces itself to one of dealing with the present landed proprietors, and for this, as I have said, I would recommend a royalty.

22. The lowest royalty is, as far as I can remember now, that asked in Nova Scotia—3 per cent. on the gross outturn of gold, and it is found to work very well in that colony. In any case a Government ought to encourage the mining of the noble metals, for of all mining it is about the most expensive and difficult, and it is extremely speculative, hence I think that a 3 per cent. royalty might be fairly adopted.

23. At the same time, it would be manifestly hard and, perhaps, unfair, on the present proprietors, who are the pioneers in the cultivation of the country, and have borne the heat and burden of the day for many years, to exact from them the same terms which will be demanded from new men. It might, therefore, be as well to deal liberally with them in filling in a clause in their leases, which has so long lain unsettled. They might, of course, gain greatly in the selling of their estates, on a sudden rise in the value of quartz, for instance; but it might be possible to meet an apparent injury to them, in the exaction of a permanent royalty by fixing a period beyond which the levying of such a royalty would come into force."

It will be noticed that in the second paragraph of Mr. King's report, *Mining Journal*, page 623, he goes into the question of the difference between true quartz veins and beds, and alludes in a general way to the geologic formation in and around the Peermerd district.

Though I quite agree with Mr. King as to the general geological features of Travancore, and as to the absence in many parts of the country, which I traversed, of quartz outcrops sufficiently large to warrant one in recommending them for mining purposes, even were they auriferous, yet where they do exist in sufficient quantity, and where there are evidences of the presence of gold, either in the free state or associated with pyritous compounds, they ought in my opinion to be more thoroughly examined than they have been, no matter whether they run with the strike of the country rock, as beds, or across it, in the form of true veins, as in the Wynaad and Kolar regions of Mysore. Later on in these articles I shall give my reason for this opinion.

On the Invernettie estate, in the Kulratti district, belonging to Messrs. Fraser and Anderson, as has been already noticed, there is a sufficient quantity of quartz, though of a bedded character, containing pyritous compounds, from which though only traces of gold were obtained, after washing, crushing, and subsequent washing and treatment with mercury; yet if, by a more thorough examination, involving deeper blasting and better selection of samples, it be found on assay or amalgamation to contain a satisfactory quantity of gold per ton, I see no reason why it should not be mined. In the same paragraph Mr. King says, in referring to the Peermerd quartz outcrops: "These outcrops of quartz are not reefs as usually understood, but are true beds of quartz rock lying between and running with other beds of the country rock, which is of the gneiss or crystalline series." The majority of quartz outcrops which I came across in Travancore are also of a bedded character, so that, so far as this circumstance is concerned, there is a connection instituted at once between them and the quartz outcrops of Peermerd, verifying Mr. King's prediction that such would be found to be the case. In the 3rd paragraph Mr. King also says:—"The size of these outcrops is small, only one of them being sufficiently large to allow any expectations of what might be called a good tonnage of stone." This may also be said in regard to the greater portion of the quartz outcrop of Lower Travancore with which I am acquainted. At the close of the same paragraph he says:—"Most important of all the quartz of the outcrops, though it shows on close assay traces of gold, is certainly not rich enough to be called auriferous quartz, in the usual acceptation of the term." Judging by the quantity of gold found in the Peermerd samples, I certainly agree with Mr. King; but, then, we are not informed from what part of the bed, and at what depth from the surface, the samples submitted to assay were taken.

Further, in paragraph 15 we find that Mr. Deighton's estate furnished the only sample of quartz which was assayed, and we have no information as to what part of the bed that was taken from. I should not attach much importance to the fact that a sample was taken from only one estate, as I feel certain Mr. King's official position and experience is a sufficient guarantee that he would be sure to attack the most likely bed or reef; but it is a matter of regret that the report does not show to what extent blasting was undertaken in order to procure satisfactory samples of the quartz. I dare say I need hardly point out that no matter how auriferous an outcrop of quartz may originally have been, long exposure to aqueous and atmospheric agencies would render it perfectly barren at such outcrop, and unless it were equally rich throughout its mass it would be necessary to excavate some distance downwards to get a satisfactory sample. In paragraph 16 Mr. King points to the presence of iron pyrites in some of the Peermerd outcrop. In some of the beds which I examined I also found iron and copper pyrites only a few inches from the surface, and whatever the quantity of gold present, it doubtless was associated with these substances.

To what extent the pyritous compounds may exist further down I, of course, cannot absolutely say, but it is now generally accepted that auriferous quartz outcrops do not necessarily diminish in richness the further down they are worked. On the contrary, in many cases they have been found richer. Again, have we any evidence that quartz outcrops of a bedded character, when found auriferous, have been worked with success? Most certainly we have. Before directing attention, however, to this fact I should like to mention a circumstance tending to show how prevailing opinions and ideas enslave us in mining as unfortunately they do in every other walk of life.

Chemical and Metallurgical Laboratory, Lime-street, E.C.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

ARMY AND NAVY HOUSE FURNISHING COMPANY (Limited).—Capital 50,000*l.*, in shares of 1*l.* To purchase, hire, rent, sell, and otherwise deal in household furniture, pictures, plate, &c. The subscribers are—J. McKay, 13, Gwendwr-road, 100; C. W. F. Crawford, 10, Warwick-square, 100; A. J. Bennett, Acton, 100; H. Wortham, Colchester, 100; J. H. Mackey, 36, Ainger-road, 100; F. Wemys, 3, Fairholm-road, 1; F. W. Holland, 62, Tachbrook-street, 1.

LONDON AND WITHERNSEA LAND COMPANY (Limited).—Capital 150,000*l.*, in shares of 5*l.* The usual business of a land company in all branches. The subscribers (who take one share each) are—E. H. Meredyth, Wambrook; J. H. Cox, Upper Norwood; W. H. Saunders, Brentwood; H. Peirce, 36, Gloster-road; W. Wigginton, 57, Tyrwitt-road; F. W. T. Thorp, Hull; G. Newton, 14, Walbrook.

GRAND HOTEL, EASTBOURNE (Limited).—Capital 50,000*l.*, in shares of 10*l.* To purchase said hotel, and carry on the business in connection therewith. The subscribers (who take one share each) are—W. W. Webb, Dalston; A. E. Eastwood, Esher; J. Arthur, 37, Ashley-street; R. Dawling, Walworth; R. C. Kendall, 86, Rosamond-street; T. H. Burnett, 59, Frithville Gardens; S. F. Easton, Herne Hill.

THE SOUTH KENSINGTON MUTUAL ELECTRIC LIGHTING AND SUPPLY COMPANY (Limited).—Capital 230,000*l.*, in shares of 5*l.* To supply by agreement, contract, or otherwise the electric or other light, telephones, &c., with or without the necessary machinery, plant, apparatus, or appliances, &c. The subscribers (who take one share each) are—C. T. Bright, 30, Bolton Gardens; J. Collinson, South Kensington; C. M. Z. M'Hardy, 1, Grenville-place; B. Nixon, 15, Grenville-place; W. G. Jones, 26, Ashburn-place; J. W. Johns, 16, Grenville-place; S. Hogg, 14, Southwell Gardens; J. Vogell, 135, Cromwell-road; A. Cooper, 80, Glo'ster-road; R. Armstrong, 6, Ashburn-place; F. W. Abury, 3, St. Albans-road; A. H. Robinson, 5, Bolton Gardens; R. Romer, 5, Grenville-place; T. L. Read, 11, Petersham-terrace; J. E. Bochm, 78, Cornwall Gardens; C. Freake, 1, Cromwell Houses; A. A. Pallandt, 4, Emperor's Gate; S. Samuel, 15, Cauldfield Gardens; J. Collett, 12, Topstone-road; J. Muirhead, 23, Regent-street.

THE CROWN MINERAL WATERS COMPANY (Limited).—Capital 25,000*l.*, in shares of 10*l.* To acquire and carry on a business of importers, exporters, manufacturers, wholesale and retail dealers in minerals and aerated waters at 67, Augustus-street, Regent's Park. The subscribers (who take one share each) are—A. Hicks, 73, Euston-road; C. V. Jones, 16, Blackfriars-road; C. Brand, 52, Drummond-street; G. Varley, Upper Norwood; J. Knights, 142, Junction-road; G. G. Capen, 63, Mortimer-street; T. Madley, Upper Norwood.

THE EXETER COUNTY CLUB (Limited).—Capital 5000*l.*, in shares of 2*l.* To erect and maintain a club-house, with power to let or otherwise dispose of same. The subscribers are—A. S. Passmore, Exeter, 5; E. Ladell, Exeter, 25; W. B. Fulford, Exeter, 5; W. Baven, Exeter, 10; R. P. Bishop, Exeter, 100; H. A. Drew, Exeter, 5; R. Wilson, Exeter, 10; H. F. Cox, Exeter, 5; J. G. Drew, Exeter, 0; P. Levy, Exeter, 20

THE LEWISHAM CONSERVATIVE CLUB (Limited). — Capital 5000*l.* in shares of 1*l.* To establish, maintain, and support a local Conservative club-house. The subscribers (who take one share each) are—T. Southgate, Lewisham; A. Newton, Lewisham; H. E. Joyce, Blackheath; C. W. Reed, Lewisham; G. M. Blandford, Admiralty; R. W. E. Middleton, 6, Lee Park; J. Sharpe, War Office.

THE STEAMSHIP LINCLUDEN ABBEY (Limited).—Capital 52,000*l.*, in shares of 100*l.* To purchase and work said steamship. The subscribers (who take one share each) are—W. Wood, Liverpool; R. P. Wood, Liverpool; R. Barber, jun., Manchester; W. G. Dutton, Manchester; F. Hill, Oaklands; T. Fairginier, Galashields; F. A. Rochliff, Formby.

THE MACKAY AND REVOLUTION SILVER MINING COMPANY (Limited).—Capital 150,000*l.*, in shares of 1*l.* To purchase or otherwise acquire land, whether or not for mining purposes, gold mines, mining rights, or minerals in Utah or elsewhere, and to adopt and carry into effect an agreement made between J. W. Harker of the one part and J. F. Lund as a trustee of the other. To explore, work, and develop the mineral and other resources of the properties belonging to the company, and to carry on generally the business of miners, smelters, and reducers of ores and minerals, and to vend such ores, minerals, &c. The subscribers (who take one share each) are—F. J. Warner, 99, Bishopsgate-street, accountant; J. Henry, 5, Bishopgate-street, merchant; F. W. Kingsbury, 21, Cecil-street, advertising agent; W. J. K. Graham, Bermondsey, printer; A. P. Lutt, 77½, Bishopsgate-street Within, printer; R. C. Sharland, 67, Woodland-street, accountant; J. S. Carter, Poplar, manufacturer. The number of directors must not exceed 10 or be less than three. Each director to receive 200*l.* per annum, and an additional 100*l.* to the chairman. The qualification is fixed at 200 shares.

THE MOUNT HEAD RANCHE COMPANY (Limited). — Capital 30,000*l.* in shares of 100*l.* To purchase, maintain, and develope a ranche situated in North America. The subscribers (who take one share each) are—G. W. A. Higginson, 9, Wilton Crescent; Sir C. Needham, Windsor; V. J. Dawson, May Fair; B. E. B. FitzPatrick, Abbeyleix; D. Lawless, Hazelhatch; P. Methuen, Corsham Court; R. M. P. Fitzgerald, 110, Eaton-square.

THE VICTORINE GOLD MINING NEW COMPANY (Limited). — Capital 150,000*l.*, in shares of 1*l.* To adopt and carry into effect an agreement made between the Victorine Gold Mining Company (Limited) and its liquidators on the one part, and this company of the other. To acquire, upon the terms of said agreement, all or any part of the property of the Victorine Gold Mining Company (Limited), and to acquire from time to time by purchase or otherwise, patents, grants, leases or takes of properties, whether situated in Nevada or elsewhere in the United States, for the purpose of fully developing and working these acquisitions, and to carry on the usual business of miners, smelters, traders, and metallurgists in all branches. The subscribers (who take one share each) are—A. K. Mackinnon, 1, Gloucester-street, M.I.C.E.; W. B. Giles, Upper Tooting, gentleman; C. Henman, 64, Cannon-street, architect; J. F. Lovering, 77, Gresham-street, gentleman; H. O. Alexander, Highbury, gentleman; J. F. Jaynes, 23, Great Winchester-street, gentleman; R. Hancock, 7, Canonbury-road, gentleman. The directors must not number more than seven or less than three. The following are the names of the first—S. Pope, R. Tennant, J. F. Lovering, and C. Guinness; future directors will have to qualify in 250 shares each.

THE WELLINGTON MINING COMPANY (Limited).—Capital 5000*l.*, in shares of 20*l.* To enter into and carry into effect an agreement made between J. J. Berry, of Cape Town, of the one part and the company of the other. The purchasing, leasing, or otherwise acquiring and holding any land, mines, and mineral rights in the colony of the Cape of Good Hope or elsewhere, for the purpose of carrying on the various operations connected with the business of a mining company. The subscribers are—C. J. Valentine, Workington, ironmaster, 25; L. Mackenzie, 38, Vauxhall Bridge-road, clerk, 1; H. Freeman, 57, Hetherington-road, 1; F. O'Shaugnessy, 45, Aynhoe-road, clerk, 1; W. Slater, 17, Cleveland Gardens, clerk, 1; T. M, Armstrong, Westminster Chambers, C.E., 1; A. Martin, Brixton, accountant, 1. No Articles of Association have been registered.

THE GENERAL SUBURBAN LAND COMPANY (Limited).—Capital 100,000*l.*, in shares of 1*l.* The subscribers are—W. C. Coxhead, Nasing, 250; J. V. H. Rees, Chelsea, 250; J. M. Cottrell, 87, Blackfriars-road, 250; W. B. Harte, 14, Union-court, 250; J. E. Brearey, Brixton, 10; J. W. Bryne, 14, St. Swithin's-lane, 5; A. T. Dewell, 25, Trafalgar-road, 5

THE SCINDIA PAPER MILLS COMPANY (Limited). — Capital 60,000*l.*, in shares of 1*l.* To purchase certain paper mills situated near Morar, State of Gwallior, and to continue the business in connection therewith. The subscribers (who take one share each) are—J. Sanderson, 46, Queen Victoria-street; J. D. Tannahill, 34, Leadenhall-street; R. P. Harrower, 34, Leadenhall-street; J. M'Nair, 34, Leadenhall-street; W. Ross, 34, Leadenhall-street; J. B. M. Marr, 34, Leadenhall-street; J. L. Whyte, 34, Leadenhall-street.

MANUFACTURE OF PEAT FUEL.

In carrying out his improvements in the manufacture of peat fuel the object of Mr. GEORGE WILSON, of Elmer's End, is to form a fuel chiefly in spherical shapes, which has self-stowage properties, and from which no stench or obnoxious vapours can arise. The fuel prepared is applicable for steam vessel or other furnaces, also for the manufacture of iron, steel, and other metals from the intense heat developed during the burning. For the preparation of this spherical peat fuel he takes (say) 1½ ton of raw peat; this he dries in a suitable oven or kiln, within which an agitation of the mass is maintained by stirrers or scrapers from the outside. The raw peat is supplied to one end of the casing, and after travelling along under the action of the stirrers will find an exit at the other end to establish a continuous working. The peat during this action not only becomes dry by the expulsion of the moisture it contained (which escapes through orifices or pipes attached to the casing), but becomes disintegrated into small fragments or particles without destroying the fibrous elements contained in it. To this said quantity of dry peat —say, 1 ton—he adds about 200 lbs. of pure peat charcoal, and thoroughly mixes the two together, either mechanically or by hand. This compound has then a solution of silicate of soda, alum, glue, or other glutinous body mixed into it, so as to form a kind of dough or stiff paste that can be handled or manipulated.

The mass is then removed from the mixing vessel and is thrown into a powerful press, in the lower part of which press is a semisphere cup lift forming a bottom to the head, and an upper semisphere cup is inverted, is inserted into an opening of the press head plate, and under the action of knuckle press levers the two semispheres are caused to approach each other and to compress the dough or paste between them to the desired extent, the air and waste moisture escaping through the two meeting edges of cups of the semispheres. During the pressure the two semispheres mould cups slide within the press head and lower plate, and when the balls of peat are sufficiently compressed, the lower semisphere cylinder is drawn out, for the removal of each completed ball of fuel, and then reinserted for the reception of the next piece of peat dough or paste. By the powerful compression the balls are made sufficiently hard and rigid, so as to retain their rotundity, and on exposure to the atmosphere become more and more hardened.

ELECTRICAL MACHINERY AND ACCUMULATORS.

The fields of magnetism are, according to the invention of Messrs. EDWARDS, ST. GEORGE, and PHILLIPS, of Redhill, arranged so as to be opposite to each other, each occupying about one-fourth of a circle, within which revolves in suitable bearings upon the foundation upon which the field magnet itself is fixed an armature thus constructed. Upon a central axis revolving in the bearings described, and preferably hollow so that it may be more readily kept cool by the passage of air or other suitable fluid, they fit a series of thin plates of soft iron, preferably insulated from the revolving axis. Each of such plates consists of a centre from which radiate two, four, six, or more pairs of arms arranged opposite to each other and of width proportioned to the size of the apparatus and the number of the arms. A sufficient number of these thin plates are fitted upon the axis of the machine, preferably separated from each other by a thin insulating material, such as paper soaked in paraffin, and the whole are fixed firmly and tightly together upon the axis by a nut upon the latter, or by other suitable means. They do not arrange the arms so that each set of plates occupies a position parallel to the axis, but they arrange each succeeding plate so that its arms are slightly in advance of the preceding ones, each compound arm, therefore, forming a part of a helical thread or rib round the axis.

Round the arms are wound from end to end and following the helical line, coils of insulated metallic wire, such as copper, of a section and length which may be varied according to the purpose to which the apparatus is to be applied, and the ends of the coils so wound are brought to the neighbourhood of the central axis, and are there connected to an insulated commutator upon the axis from which any electricity generated in the wires is collected by insulated metallic brushes of any of the ordinary well-known kinds, and its direction is adjusted so that it is conveyed away by insulated wires to any point where it is to be utilised for the purpose of producing light, motive power, or for other purposes. By this method of construction a current is generated in each coil of wire as each individual plate of the compound arm in succession comes within and leaves the field of each pole of the magnet, the arms being so arranged that the first plate of each arm has entered such field before the last plate has left it, and the first plate of the next succeeding arm has entered such field before the last plate of the previous arm has left it, and in this way a perfectly uniform, even, and constant current of electricity is generated, with a moderate expenditure of power, by a machine of comparatively small size and weight.

An improved accumulator or secondary battery has also been invented by Mr. St. George. He makes use of a battery of which each element is composed of a carbon or metal rod or plate in a suitable earthenware cell, preferably pulverised calcined flint made into a paste with water and baked or dried at a moderate temperature after having been formed into a cell or chamber of the desired shape. The bottom of the cell is closed, preferably with insulating material such as sealing wax or other material of a similar kind. He fills the cells made as described, of any suitable shape, preferably circular in plan, with chromate of lead made into a paste with water and poured into them, or other sufficiently oxidisable and deoxidisable salt of a metal, and the paste is then allowed to dry. A hole or opening is then drilled or made in the dry mass, into which the carbon or metal rod is inserted so as to be in good contact with the chromate of lead. If carbon is used its upper extremity is coated with copper or other metal, and the upper end of the cell or tube round the carbon and above the bichromate of lead is then closed with insulating material of a kind similar to that used at the bottom. A number of cells constructed in the method and of the materials described are arranged in a trough of glass or other suitable material which is filled with water acidulated for the purpose of improving its conducting power.

The cells are preferably arranged in two rows opposite to each other, and he prefers to arrange transverse divisions, or partitions, of glass, ebonite, or other suitable insulating material, which can be readily inserted in grooves, guides, or other devices, between each pair of opposed cells in the two rows, or between each two, three, or more such pairs. In order to charge a secondary electrical battery constructed and arranged in the novel method described, the transverse divisions or partitions being removed, he connects together the whole of the carbon or metal rods of one of the rows of cells and he connects them with one pole of the galvanic battery or other electrical generator which is used, and the whole of the carbon or metal rods in the other row of cells are connected together, and to the other pole of the battery or generator, and the secondary battery becomes charged with electricity in considerable quantity, but of comparatively small intensity.

In order to obtain, when required, from a battery so charged a current of electricity of great intensity, as, for instance, when it is to be used for the purpose of producing incandescent electric light by means of conductors of high resistance in the usual well-known way, he first inserts the transverse divisions or partitions in their places, so as to insulate from each other in the trough the several pairs or sets of pairs of opposing cells, and he then connects the carbon or metal rod of the first cell in one row with the carbon or metal of the second cell in the opposite row, the carbon or metal of the second cell in the first row with that of the third cell in the opposite row, and so on with the whole set of cells, and he then connects the carbon or metal rod of the first cell in the second row with one of the conductors through which the current of electricity is to be passed, and the carbon or metal rod of the last cell of the first row with the other such conductor, and in this way he obtains a continuous current of great intensity through the conductors. The alterations of the connections between the several carbon or metal rods are effected when necessary by means of suitably arranged switches or handles of the ordinary well known kinds.

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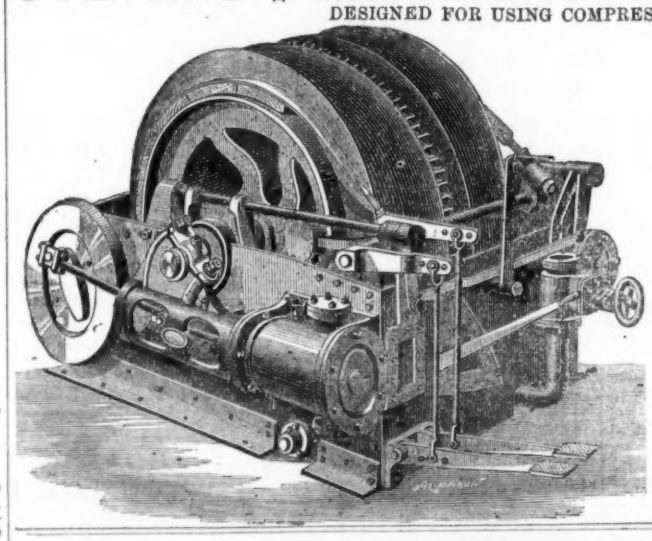

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